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See Page 263

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Vol. 54 NO. 17

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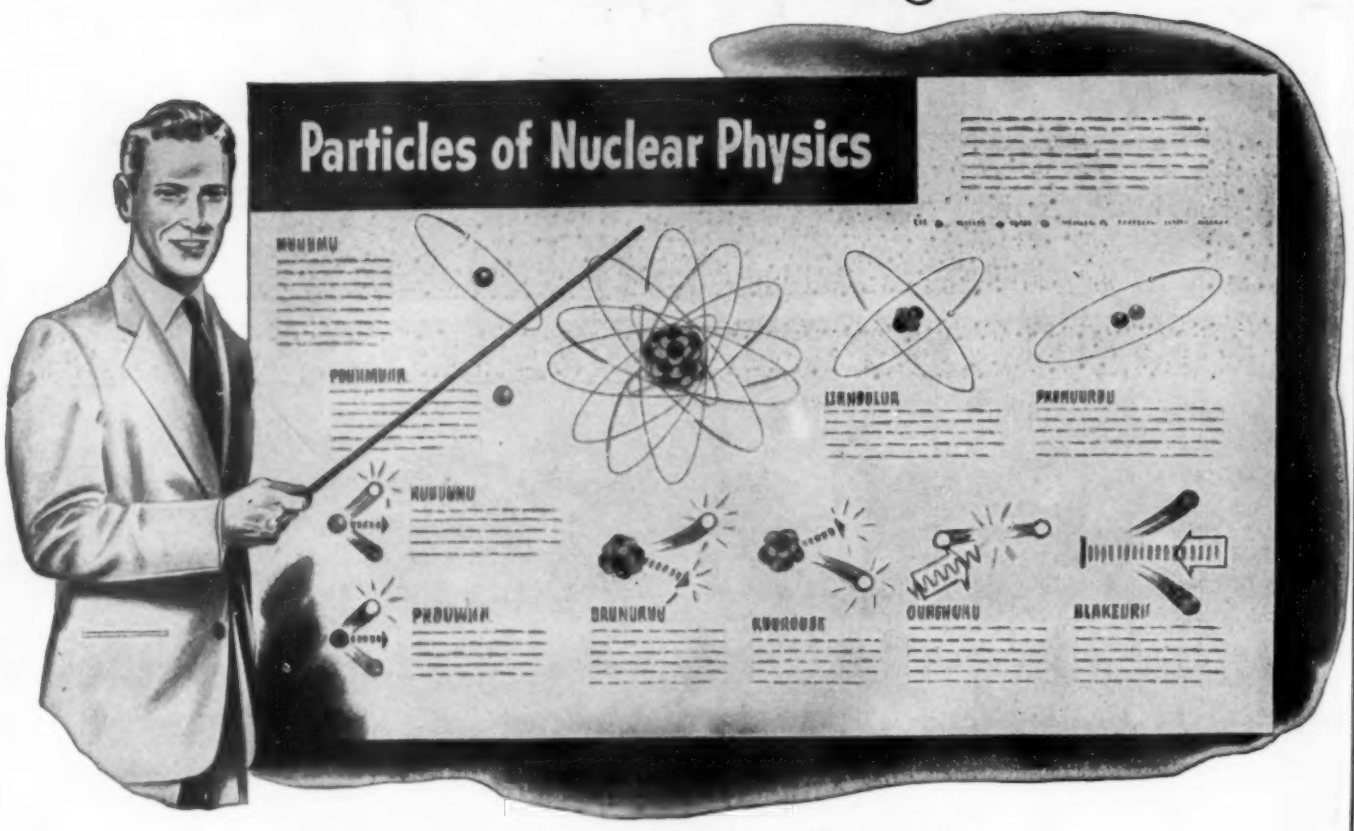

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NUCLEAR PHYSICS

Atomic Storage Batteries

There is a possibility that a large variety of radioactive isotopes of the chemical elements may be produced by the pound from atomic piles.

➤ PACKAGED ATOMIC POWER may prove to be the way that nuclear energy may be applied to jet planes and rockets, flung at long range at an enemy.

Or the glowing "hot" bundles of radiating material, manufactured in the atomic piles as a by-product of bomb material production, may provide concentrated power sources for remote installations for peaceful purposes, such as heat for polar living.

When Atomic Energy Commissioner Lewis L. Strauss stated recently that atomic "storage batteries" might be made, he was referring to the possibility of the artificial production of large amounts of radioactive material by the intense bombardment in the atomic chain reactors at Hanford, Oak Ridge and elsewhere.

The same effect might be accomplished if a dozen pounds or so of pure radium salts were brought together in one place. Mme. Curie saw the radium bromide she produced glow visibly in the dark with its intense radium. Heat, as well as intense and dangerous gamma and other radiation, is produced by radioactivity, natural as well as artificial.

No one has had or has ever hoped to have pounds of radium, but the atomic piles give the practical possibility of producing by the pound, if needed, a large variety of radioactive isotopes of the chemical elements. Some 600 have already been produced. Of these a score or so might be expected to be useful in the proposed atomic storage batteries.

Most conveniently, these artificially radioactive elements destroy their activity in half-life times ranging from fractions of a second to thousands of years. They literally convert their substance into radiation, and the scientists rate their permanence in the time that is required for half their radioactivity to disappear.

Take sodium, for instance, a common metallic element that is in the sodium chloride of common salt. It has at least three radioactive varieties, created by neutron bombardment, which have half-lives of 23 seconds, 14.8 hours, and three years.

If this element were the active part of an atomic storage battery, the battery could be charged for a very short time or a relatively long time.

The users of such an atomic storage battery could not change its rate of output or vary its length once it was made. This is quite different from the atomic pile itself that depends upon fission of uranium or plutonium by neutrons. The pile can be speeded up or slowed down by the way it is operated, the fastest operation being an atomic bomb that explodes in a fraction of a second. Radioactive decay follows a rate that cannot change by similar devices.

Very difficult problems remain before artificial radioactivity can be applied practically for power purposes, just as the methods of applying chain reactors to power production are far from solution. The same protection of human beings and other substances against the lethal and damaging radiations must be achieved, although it might be simpler in some respects for artificial radioactivity.

The conversion of radiation into heat and the transfer of the intense heat and radiation into the kind that can be used practically are major problems, that may take years to solve.

Imagine having an intense energy source in little weight and try to guess what it might mean to rockets and jets, unmanned and radio controlled, aimed at an earthly or even a moon target.

Science News Letter, October 23, 1948

MEDICINE

Flour Freed of Danger

The potentially dangerous nitrogen trichloride treatment of flour which has caused fits in dogs, will be discarded soon for a safer process.

➤ FLOUR for the staff of life, and for macaroni, noodles and pastry as well as bread and biscuits, will soon be freed from the danger of causing fits, in man or dog.

A U. S. Food and Drug Administration order for a change from the potentially dangerous "agene," or nitrogen trichloride, to chlorine dioxide for treating flour from certain kinds of wheat is expected soon.

Sir Edward Mellanby, distinguished English nutritionist who just two years ago discovered the possible danger of agenized flour and bread, came over from London to give a first hand report of his findings at the Food and Drug Administration hearings.

"Running fits," or canine hysteria, he found, was produced in dogs by feeding them flour treated with nitrogen trichloride. This chemical has been widely used for the past 25 years to age flour from certain kinds of wheat so it will make better bread.

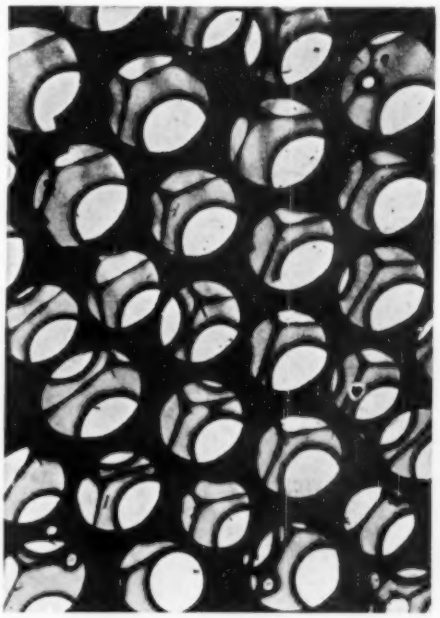
The possibility that the agenized flour might be causing epilepsy or some kind of nervous disorder in humans alarmed everyone, medical and health scientists as well as the general public.

No hint of any damage to humans from this flour had come in all the 25 years it has been used. Special studies were made in which the agenized flour was fed human volunteers in amounts and for periods of time that would unfailingly produce "running fits" in dogs. No symptoms and no changes in brain waves, suggesting a tendency to convulsions or fits, were found.

Nevertheless, our Food and Drug Administration, the flour millers of the nation, and manufacturers of "agene," decided to play it safe. So instead of nitrogen trichloride, flour in future will be treated with chlorine dioxide. So far as can be found by scientific studies, this chemical has no harmful effect on humans or dogs or other animals.

Technically, the Food and Drug order for the change will come in the form of an announcement of an amended standard for flour.

Science News Letter, October 23, 1948



ELECTRONIC PORTRAIT — This shows the skeleton of a diatom, a microscopic plant used in beer filters, magnified 13,500 times by the electron microscope in the General Electric Research Laboratory.

MEDICINE

Humidity Checks Germs

A 50 percent relative humidity reduces the infecting ability of influenza virus about four-fifths, experiments indicate.

➤ A RELATIVE HUMIDITY of 50% promises to become a weapon against influenza, pneumonia, strep. sore throats and perhaps other diseases on the basis of experiments by scientists at the University of Chicago.

Influenza virus loses almost four-fifths of its ability to attack when the relative humidity is 50%, Dr. William Lester, Jr., of the University's department of medicine finds.

The results of his experiments resemble closely those reported last winter by Edward W. Dunklin and Dr. Theodore T. Puck of the University. They discovered that a 50% relative humidity is rapidly fatal to Type I pneumonia germs, staphylococci and streptococci. (*See SNL*, Feb. 28.)

Viruses were not included in the Dunklin-Puck experiments. Dr. Lester has now exposed white mice to influenza A virus atomized into the air the animals breathed. The amount of virus that killed 100% of the animals at relative humidities of 30% and 80% killed only 22.5% of the animals when the relative humidity was 50%.

The other types of 'flu virus and the virus that causes virus pneumonia may be affected in the same way, though Dr. Lester's report to the JOURNAL OF EXPERIMENTAL MEDICINE does not cover studies on these other viruses.

The striking power, or infectivity, of the air-borne influenza A virus decreased so rapidly at a humidity of 50% that it was impossible, Dr. Lester reports, to get a 100% mortality rate in the mice even by greatly increasing the amount of virus.

Salt seems to play an important part in the anti-virus and anti-germ effect of humidity. At 50% humidity all the mice died when exposed to virus free of salt. This is in line with the findings of Mr. Dunklin and Dr. Puck on pneumonia, staphylococcus and strep. germs. They suggested that the humidity plays its lethal role on the germs by dehydrating them to the point where they become most vulnerabl to the action of salt. In the Dunklin-Puck experiments germs sprayed from salt solution or from human saliva, which is the natural way they get into the air, were rapidly killed.

Science News Letter, October 23, 1948

ORNITHOLOGY

Sticky-Leaved Weed Catches Young Owl

➤ YOUNG OWLS should watch what they poke their heads into when out strolling; otherwise they may get stuck.

That would seem to be the moral of a brief but curious tale told by Dr. Gordon W. Gullion of the University of Oregon, in the Western bird-study journal, CONDOR (Sept.).

Dr. Gullion was on a field trip in the hills west of Eugene, Ore., when he came upon a young owl under a tar-weed, a common wild plant of this region, with leaves made exceedingly sticky by exuded drops of a soft resin. The poor bird had brushed its head against two of the leaves —and there it was, unable to get away or to move more than a couple of inches.

The little owl was not quite fully grown and had not yet developed its flight feathers. Apparently it had left the nest and was walking on the ground through the bushes when it ran into this "tanglefoot"—or rather tanglefeather—plant.

Dr. Gullion rescued the young owl from its vegetable captor, though he had to pull all the stuck feathers out of its head to get rid of the clinging leaves. Then he put an identification band on one of its legs and let it go.

He suggests that the tar-weed may make occasional catches of this kind that do not end in the rescue of the captured birds.

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Question Box

GENERAL SCIENCE

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MEDICINE

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Photographs: Cover, p. 263, The Haloid Co.; p. 259, General Electric Co.; p. 261, Standard Oil Co.; p. 262, Curtiss-Wright Corp.

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GENERAL SCIENCE

Conant on Education

Harvard president proposes plan for military strength without disrupting college study; adequate schools for all; and dissection of Soviet philosophy.

► THE NATIONAL militia plan for the armed forces, proposed by President James B. Conant of Harvard in his book, EDUCATION IN A DIVIDED WORLD, published by the Harvard University Press ($3) will be received in educational circles as a means of maintaining military strength without disrupting college education.

President Conant suggests enrolling every physically fit boy at 18 or high school graduation for a period of 10 years in the National Guard. Summer camps and evening drill would provide the military training. The boys would have uninterrupted college opportunity that would furnish the specialists in peace and war.

Although this plan is not supported by the military men, educational authorities have been opposed to the wrecking of the college year by even six months of training.

The present draft will not affect college students until next June, as any called will be deferred until the end of a college year.

In the long run, President Conant, himself a chemist, warned against educating more doctors, lawyers, engineers, scientists and college professors than our economy can support. He fears that such people, if unemployed, as in pre-war Germany, might become frustrated individuals who would lead anti-democratic movements.

Primary Education Need

The number one educational need of the present, in President Conant's judgment, is "an understanding of American democratic society and its historical goals, and a dissection of Soviet philosophy and an exposure of its methods."

The necessity of equality of opportunity for youth of each succeeding generation is emphasized by President Conant, who assumes an armed truce until at least the middle fifties and a divided world for a long time to come.

He wants state tax money used to bolster up the schools in parts of the state where local funds do not provide adequate schools. He wants federal aid to education along the lines proposed by Senator Taft. He wants discovery of the various talents in youth early so they can be cultivated. He wants two-year colleges added to local school systems to provide vocational training and training in citizenship at home. He wants a college degree awarded at the end of these two years. He wants some federal scholarships for the best qualified youths in the four-year professional colleges.

"As a nation, we are a long, long way from equality of educational opportunity," Mr. Conant reports. "An examination of various localities shows that already in the United States there are wide variations. Instances of very restricted opportunity and instances of very wide opportunity for children of the lower income groups may be easily discovered."

Not only does family income affect a child's schooling, but also the location of his home. Youths in cities, where universities are located, he shows, have a much better chance of continuing their education than youths in rural communities, who must go away to college.

Mr. Conant cites estimates that "as many promising boys and girls fail to go to college for economic reasons as the number who now enter," and he estimates that "somewhat less than one-fourth of the male white population between the ages of 10 and 16 now lives in urban areas within convenient commuting distance of a satisfactory university."

"To the extent that educational opportunity is determined by geography or by family status," he warns, "the increased importance of formal education in modern America tends to make for social stratification.

"When education more advanced than the elementary schools was hardly required except for a few professions, a man might make a career for himself without benefit of formal learning," he points out; but today "even a man with great native ability whose education stops at the end of grammar school has many doors of opportunity firmly closed."

Of America, Mr. Conant says: "Our fitness to survive the Russian challenge clearly depends on many factors, but it depends primarily on a vigorous demonstration of the vitality of our own beliefs in democracy and freedom."

Scientific Method

In his own field of study, Mr. Conant suggests that teachers "reject the extravagant claims for the scientific method as a modern Aladdin's lamp and question the validity of the assumption that the study of physics trains the mind of the future statesman."

Students should be given "the conditions of scientific inquiry, that is to say, the nature of the assumptions about the external world which are essentially those of common sense."

"Then if we seek to spread more widely the desire to examine facts without prejudice and to glorify the bold and impartial inquirers of the 20th century, we should go to other fields than natural science. . . .

NEW RESEARCH CENTER—One of the world's largest petroleum research centers, just opened, was built for the Standard Oil Development Company. The building shown here from the air is the first unit of the center, located at Linden, New Jersey, which will house approximately 650 chemists, engineers and research assistants in its 80 laboratories. In the background are oil storage tanks.

Rather than leave in the minds of the pupils the very dubious proposition that the methods of science are applicable to all manner of practical human affairs, we should show how legal methods of inquiry have been used in Anglo-Saxon countries. Likewise, we must study the rational methods of merchants, manufacturers, soldiers and statesmen which were employed with considerable success for generations, long before any idolatry of the word 'science' came over the academic horizon."

Despite difficulties and criticism of the method, Mr. Conant believes that "for young pupils the presentation of general science in terms of understanding the earth, the atmosphere, the process of life, and to some degree modern technology, is the most likely way to arouse their interest."

Science News Letter, October 23, 1948

ASTRONOMY

Meteor from Outer Space

➤ A METEORITE weighing 1,164 pounds, the eighth largest rock known to have crashed through our atmosphere and landed in the United States, has been found to have some unusual features.

Deep depressions on the surface of this piece of iron from the heavens probably existed before the meteor became trapped in our atmosphere, E. P. Henderson and S. H. Perry of the Smithsonian Institution state.

The so-called Drum Mountains meteorite from Utah was discovered by chance four years ago by two Japanese from a neighboring relocation center set up for enemy nationals during the war.

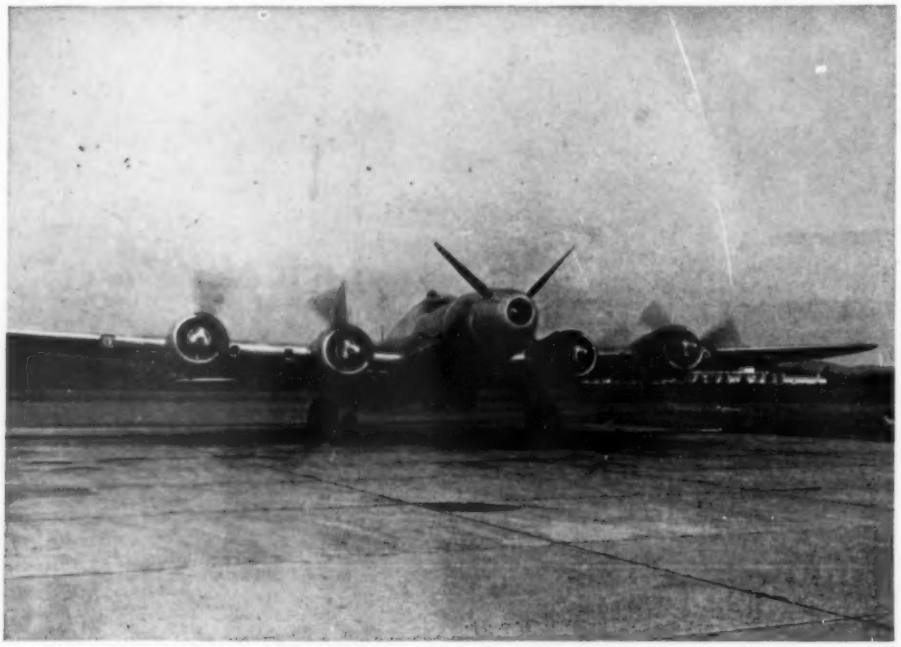
These two, Yoshio Nishimoto and Akio Ujihara, were conducting classes in gem cutting for the internees. Exploring the countryside for materials suitable for classroom demonstration, they came upon a large rock protruding two feet above the ground. Thinking the rock unusual, Mr. Nishimoto chipped off a piece and sent it to the Smithsonian. The complete rock has since been brought to Washington and examined.

The surface of iron meteorites frequently show broad, shallow depressions, popularly known as "thumb marks." This iron has deeper depressions, unrelated to the so-called thumb marks, also observed on some other iron meteorites.

These depressions in the past have been explained by some as due to weathering or rusting out of some constituent after the meteorite landed. Others reported them due to the burning out of troilite, a sulfide of iron, during its flight through the earth's atmosphere. Mr. Henderson and Mr. Perry interpret these markings as ones created in cosmic space, before the meteorites entered our atmosphere.

The meteorite was found resting almost entirely on the surface of the ground. L. B. Aldrich, director of the Smithsonian Astrophysical Observatory, estimates that this 1,164-pound meteorite must have struck the earth with a force of at least 20,000,000 foot-pounds. Yet no crater was found in the formations in which the iron was discovered, and the surface of the meteorite is surprisingly free from any evidence of an impact as great as this. The meteorite possibly fell some distance from the point where it was found, and either bounced or rolled to the place where it finally came to rest. Or its impact with the earth may have been cushioned by deep snow or loose sand.

Science News Letter, October 23, 1948



FLYING LABORATORY—This B-17 bomber has been converted into a five-engined flying laboratory to test the new high-powered turbine engine, the Wright T-35 "Typhoon."

VETERINARY MEDICINE

Dogs May Be Poisoned By Chewing on Paint

➤ DON'T LET the pup chew on anything painted, warns the American Veterinary Medical Association. Ordinary paints often contain lead, and there are cases on record of dogs developing lead poisoning after chewing wooden objects covered with such paint. In one case, the animal was poisoned by paint that had been used on his own house.

Science News Letter, October 23, 1948

AERONAUTICS

Five-Engined Plane Used For Flying Laboratory

➤ THE MYSTERY of the five-engined airplane observed during the past year in flights over the eastern coastal region of the United States is at last explained. It is a converted B-17 Flying Fortress to which has been added a new engine for testing, mounted in an extended nose.

The new engine is a Wright T-35 Typhoon. To test this new American-designed turbine under actual flight conditions and thereby speed up its development and early use by the U. S. Air Force, Wright engineers conceived the idea of a real flying laboratory.

For the purpose, one of the B-17 Flying Fortresses, that played such an important part during the war, was secured and modified. The changes were made by the Boeing Aircraft Company. The cockpit was moved back four feet, the nose extended, the fuselage reinforced and heavier frames and outer skin installed.

Then the new power plant, equipped with a four-bladed electric propeller, was mounted in the nose section. With this flying laboratory, Wright engineers have tested the new Typhoon engine-nacelle-propeller combination at high altitudes at actual service conditions at a fraction of the cost and time formerly required to test a new power plant. On these flights the Typhoon was operated or not at will, while the power of the four Wright Cyclone engines of the conventional piston type, with which the B-17 is equipped, were adjusted as desired.

Science News Letter, October 23, 1948

TECHNOLOGY

Dry Printing Process

Chief advantages of this revolutionary printing process will be the light weight of printing machinery and simplicity of plate-making.

See Front Cover

➤ A REVOLUTIONARY completely dry process for taking pictures and printing was revealed to the Optical Society of America meeting in Detroit.

Static electricity and dry powders take the place of the familiar chemical solutions used in photography, in the new process called "xerography." Xerography was described by Dr. R. M. Schaffert, head of graphic arts research at the Battelle Institute, Columbus, Ohio, and Joseph C. Wilson, president of the Haloid Company, Rochester, N. Y.

They explained that the fast, new, dry process promises to find uses in both the present fields of photography and printing.

A finished picture can be produced in less than a minute with xerography, they reported. The process is simple enough to be followed by an unskilled person, and prints can be made on a variety of materials, such as glass, cloth, metal or wood, in addition to ordinary papers. Because powder is used, it is possible to make the equipment simpler and less costly than in other methods, the meeting was told.

Here is how the new process can be used to take and print pictures:

A photoconductive plate, made by coating a backing material such as a metal sheet with a photoconductive insulating material, is electrically charged by rubbing it with a cloth or some other method in the dark. This makes the plate sensitive to light.

This plate is then exposed to light in a camera, the way that film is used to take pictures. The coating discharges the electrostatic surface charge into the backing wherever the light falls on it. This leaves a latent image on the surface of the plate.

Developing is done by flowing a powder over the surface of the plate as shown on this week's cover of the SCIENCE NEWS LETTER. This powder includes a superfine developing resin and a coarse carrier material. A mirror-reversed image, like a film negative, results. Printing is accomplished by charging the paper on which the picture is to be printed. The powder is attracted to the charged paper to form the image. Fixing is done by heating the paper print for a second or two.

Black developing powder on white paper will create a black and white print, but other colors may be made for multi-color printing, using separate plate images for each color.

Xeroprinting was described as a simpler variation of the xerographic process. It uses a xeroprinting plate on a rotating cylinder. The plate includes a charging device, a mechanism by which the image is developed with a powder developer, a mechanism for transferring the powder image to paper, a method for fixing the powder to the paper and cleaning or auxiliary devices as required.

The image plate is evenly charged by a corona discharge device, but the charge immediately passes off the conductive, nonprinting surface, while remaining on the printing surface. As the cylinder turns, the plate enters a developing chamber where powder is applied, and on to where the paper and plate are passed under corona discharge points. Here, the image is transferred to the paper, which passes through a heating unit to fix the image.

Xerography was invented by Chester F. Carlson, a New York patent attorney, who patented the process. He licensed the Battelle Institute to develop the process. Mr. Wilson reported that his company is preparing to market a xerocopying machine for reproducing copies of documents of various sorts. Continuing research on the process is also being sponsored by the Signal Corps, Department of the Army. A full scientific report of the work by Dr. Schaffert and C. D. Oughton of the Battelle Institute will be published later.

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ENGINEERING

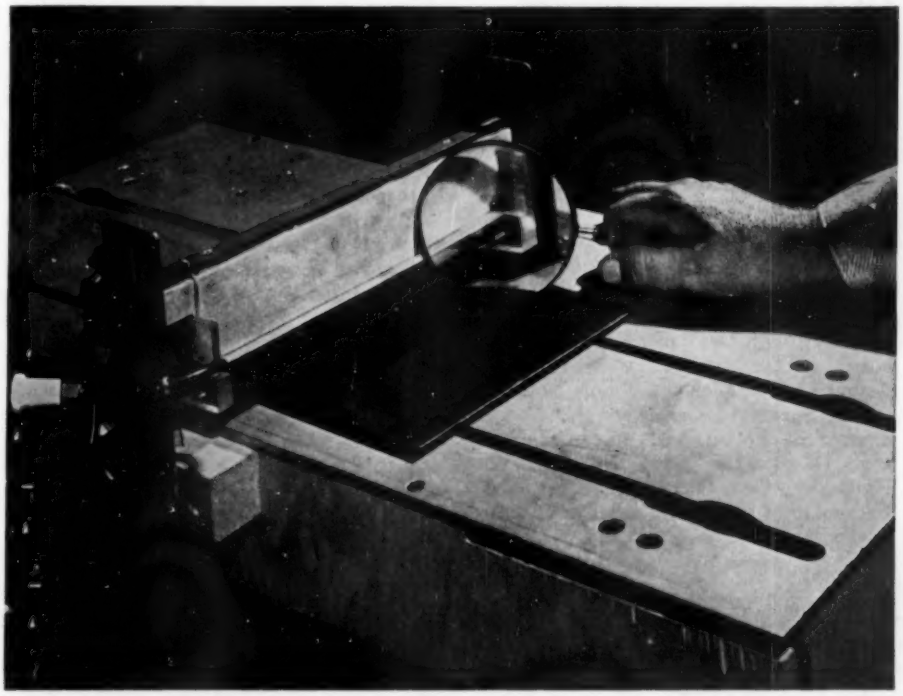
Man-Made Shock Waves Measured by New Device

➤ MAN-MADE SHOCK WAVES passing through the earth, resulting from underground explosions set off by engineers in connection with large construction projects, are accurately measured in velocity and acceleration by a new instrument revealed by General Electric.

The instrument is so designed that it can be buried near the scene of test explosions. It can register shocks up to 1,500 times the force of gravity, and as many as 10,000 impulses per second. The device, the size of a can of baby food, contains crystals which generate a voltage when stresses are applied to them. Signals from the crystals are carried through cables to amplifiers and recorders above ground.

In a recent test of four of these instruments, they gathered data on what sorts of shocks occur 130 feet below 500,000 pounds of high-explosives. The giant explosion was made on the site of Watauga dam, Tenn., to be constructed by the Tennessee Valley Authority.

Science News Letter, October 23, 1948



ELECTRON SPRAYER—This machine, the only specialized apparatus required for xerographic reproduction, is used both to sensitize the plate and to transfer the powder image from the plate to paper by "spraying" electrons from the fine wire visible through the enlarging glass.

GENERAL SCIENCE

Hiroshima Bombing Gained Soviet Scientists a Raise

➤ SALARIES of Soviet nuclear physicists were trebled when the atomic bomb exploded over Hiroshima, Dr. I. I. Rabi, Columbia University Nobelist, told an audience at the dedication of Cornell's Laboratory of Nuclear Studies in Ithaca, N. Y.

Comparing the Soviet scientists of today to the alchemists of the Middle Ages who attempted to turn base metal into gold for their patrons, Dr. Rabi expressed doubt that the Soviet scientists find happiness and inspiration in their exalted condition.

The Soviet scientist is expected to produce discoveries which will not only strengthen the state but will support the doctrines of the dominant group, he explained. For success he receives great rewards, country estates, servants, limousines and well-equipped laboratories.

"From the standpoint of basic science such limited and materialistic motivation is irrelevant and even vulgar," Dr. Rabi said. "The real reason for basic research is to expand the boundaries of knowledge pure and simple. It is an expression of the human spirit."

Science News Letter, October 23, 1948

GENERAL SCIENCE

Appoint Biologist Editor Of A.A.A.S. Publications

➤ DR. GEORGE A. BAITSELL, Colgate professor of biology at Yale University, has been appointed editor-in-chief and chairman of the editorial board for the American Association for the Advancement of Science's two publications, SCIENCE and THE SCIENTIFIC MONTHLY.

The appointment was announced by Dr. Edmund W. Sinnott, director of the division of sciences at Yale and president of the A. A. A. S.

Serving with Dr. Baitsell on the editorial board of the publications will be: Dr. Arthur C. Bevan of the Illinois State Geological Survey; Dr. Edward U. Condon, director of the National Bureau of Standards; Dr. Bentley Glass of Johns Hopkins University; Dr. Malcolm H. Soule of the University of Michigan; and Dr. Everett S. Wallis of Princeton University.

Science News Letter, October 23, 1948

ENGINEERING

Entire Tree Can Be Used By Converting Wood Waste

➤ BY CONVERTING wood waste into new forms through new mechanical means, the lumber and plywood industries can make great strides toward the complete utilization of the tree, the American Society of Mechanical Engineers were told in High Point, N. C., by Armin Elmendorf of the Elmendorf Corp., Chicago. This will result in a great increase in the production of new types of wallboard and synthetic lumber and some of these boards will be superior in many respects to ordinary lumber.

The need for increasing woodworking research was emphasized by George M. Hunt, U. S. Forest Products Laboratory, Madison, Wis. The gap between research findings and their industrial application should be made as narrow as possible, he stated. If the Forest Products Laboratory publishes the essentials of good seasoning practice, the only plants that benefit are those that apply the information to their own operations.

Among recent advance steps made by the laboratory is the development of a process for the manufacture of wood sugar from wood waste. This, he said, has enormous potential benefits to the nation when plants are built and the process is put to use.

Science News Letter, October 23, 1948

PUBLIC HEALTH

1948 Not Big 'Flu Year Despite the Calendar

➤ HERE IS good news for you. According to the calendar we were due for a worldwide epidemic this year of influenza and pneumonia such as in 1918 attacked 20,000,000 people in the United States alone and killed over half a million of them. Instead, statisticians of the Metropolitan Life Insurance Company predict that the death rate from these diseases for 1948 will drop below the all-time low reached in 1947.

"So far this year," they explain, "there are no signs of an influenza epidemic, either in the United States or elsewhere. This is unlike the situation in 1918, when months in advance of the pandemic serious outbreaks occurred in army camps and naval installations in our country. In Europe, too, there were outbreaks in the spring of 1918."

Although there is no well-defined cycle, these worldwide epidemics have in the past occurred at intervals averaging about 25 or 30 years. Even if maior outbreaks should occur, "the medical and public health professions are much better prepared now than 30 years ago to meet the attack," the statisticians point out.

Sulfa drugs and penicillin are mostly responsible for the reduced death rate. Since 1935-37 the decline in deaths from influenza and pneumonia has been proportionally three times as great as in the ten previous years. Last year the rate was 17.4 per 100,000.

However, the battle against these diseases is still not won, they caution. Certain forms of pneumonia, including virus pneumonia, have no specific treatment.

Science News Letter, October 23, 1948

IN SCIENCE

PHYSIOLOGY

Control Center in Brain Called Key to Evolution

➤ THE BODY'S thermostat, which keeps the temperature of warm-blooded animals at a constant level and enables cold-blooded ones to adapt their life processes to the changes in temperature imposed on them by their environment, is a small but highly specialized part of the underside of the brain known as the hypothalamus. Importance of this brain organ was demonstrated in experiments by Dr. Simon Rodbard of Michael Reese Hospital in Chicago, who reports his findings in SCIENCE (Oct. 15).

Other jobs that have been assigned to the hypothalamus, states Dr. Rodbard, include "regulation of blood pressure, respiration, appetite, the diurnal rhythm of sleep and wakefulness, the sexual cycle, and the control of the metabolism of sugar, fat and water."

Coordination of all these functions by one control center, Dr. Robard points out, enabled fish to survive in inshore waters where temperature range was greater than in the open sea, then made it possible for fish-like creatures to come ashore as amphibians and reptiles. Increasing efficiency of control accompanied the evolution of mammals and birds from two different reptilian stocks. The hypothalamus can therefore be looked upon as the physiological key to the process of vertebrate evolution.

Science News Letter, October 23, 1948

ASTRONOMY

New Comet Discovered By Lick Astronomer

➤ ANOTHER FAINT COMET has just been discovered by Dr. C. A. Wirtanen of the University of California's Lick Observatory.

Of the 14th magnitude, it is far too faint to be seen with the naked eye, but can be picked up with a ten- to 12-inch telescope.

As this is the third comet Dr. Wirtanen has found so far this year, it will undoubtedly be referred to as Comet 1948 k, the letter "k" denoting that it is the eleventh comet found in 1948. This comet is the ninth new one spotted since January 1.

The comet was discovered with the observatory's 20-inch star camera. Its faint, short fuzzy trail was found on routine plates taken Oct. 7, reports Dr. Charles D. Shane, director of the observatory. Found in the constellation of Aquarius, the water carrier, it was moving southwest.

Science News Letter, October 23, 1948

E FIELDS

MEDICINE

Nose Blowing OK During Colds, Sub Men Show

➤ NOW YOU CAN BLOW your nose when you have a cold, without worrying about getting ear trouble.

Evidence that, contrary to general medical teaching, nose blowing does not cause ear infections comes from 30,000 Navy submarine men trained in the Momsen lung during the war. It was presented by Dr. R. Wallace Teed of Ann Arbor, Mich., at the meeting in Chicago of the American Academy of Ophthalmology and Otolaryngology.

The old idea was that nose blowing during colds forced germs into the tube connecting ear and throat. But the men training in the Momsen lung, a device for escaping from a sunken submarine, had frequently to inflate this tube between ear and throat to equalize pressure in the middle ear as they made their "escape" through the water.

Dr. Teed declared that he was "horrified" to see men with acute infections going through this test and inflating their tubes at least 50 times during each test. But of the 30,000 men, about 90% of whom had colds, only one got an ear infection from inflating the tubes.

"The sheer weight of this evidence," he declared, "gradually forced on me the conclusion that the older teaching, that otitis media (middle ear infection) was caused by improper blowing of the nose during an infection, was entirely fallacious and should be discarded."

What causes ear infection, he decided, is direct obstruction of the tube by infection of tissue, creating a relative vacuum in the middle ear, which fills with serum that in turn may become infected; but nose-blowing has nothing to do with it.

Science News Letter, October 23, 1948

GENERAL SCIENCE

U. S. Technology Is Weapon Against Soviet Propaganda

➤ AMERICAN technical experts and machinery sent to Russia may be "one of the best investments for peace in the future that could be made," Watson Davis, director of Science Service, told a meeting of the American Institute of Electrical Engineers in Philadelphia.

"No Russian could work alongside an American specialist without being immunized to some degree against the malicious hate propaganda against the capitalist system," Mr. Davis declared.

"No Russian can work with American equipment without being convinced that the American way of life produces successful technology that enriches living and helps all mankind regardless of where he may live on the face of the earth," he explained.

Pointing out that Americans must protest attempts by the Soviets to change scientific facts by decree, as in the case of genetics theory, the speaker said that such acts will correct themselves.

"The next generations—whether they be of fruit flies, wheat or people—will prove the truth," he pointed out.

"Scientific honesty and freedom is at the heart of the democracy of free peoples," Mr. Davis said.

Science News Letter, October 23, 1948

MEDICINE

Tannic Acid Treatment Advised for Poison Ivy

➤ THE PICNIC SEASON may be over but poison ivy lingers on to plague gardeners getting in some last licks before the snow flies and others who roam the woods to gather autumn leaves and berries for home and school decorations.

For those unlucky enough to get an attack of ivy poisoning, the tannic acid treatment developed some years ago by scientists of the U. S. Public Health Service is said still to be the best known. Injections of preparations of the ivy poison are frowned upon by some skin specialists. Good results have been reported with them in some cases. But some specialists believe the explanation is that in such cases the injections probably were not given until the trouble was about ready to clear up anyway.

The tannic acid treatment can be applied at home, but advice is to consult a physician first, to make sure the trouble really is ivy poisoning, and not some other skin condition that might be made worse by the tannic acid. The treatment is said to stop itching and discomfort from poison ivy within one or two days and to clear up the condition entirely within a week.

Directions are to clean the inflamed area with gauze soaked in alcohol, rubbing vigorously to break the blisters. Then apply a dressing wet with a 10% solution of tannic acid in water. Leave this on for one hour. Repeat the treatment every six hours, breaking any new blisters that have formed.

The tannic acid should not be used on the face or genitals.

Boric acid wet dressings can be used instead of the tannic acid, applying them for several hours several times a day.

Remember that clothing, garden tools, logs for the fireplace and even the cat's fur and dog's hair may be contaminated with the ivy poison. Be sure all these are washed or otherwise cleaned so that handling them will not cause fresh bouts of the trouble.

Science News Letter, October 23, 1948

ENGINEERING

New Ceramic-to-Metal Seal Improves VHF Radio Tubes

➤ A NEW METHOD of sealing ceramics to metal offers many advantages in producing tiny radio waves a few inches in length, Dr. C. G. Suits of General Electric revealed. The seal is made by an alloy of silver and titanium.

Most radio tubes, such as those used in ordinary home broadcast receivers, are now made of glass, though some are made with metal envelopes. However, those used for microwaves have much more severe requirements. The tubes themselves must be small, which means that they must operate at high temperatures. This introduces trouble with glass.

A ceramic material, however, seems to meet the difficulties. A type must be used which is strong and retains good insulating properties even when hot. Methods ordinarily used for bonding metal and glass cannot be used with ceramics.

The new technique was developed in the ultra-high-frequency section of General Electric Research Laboratory by R. J. Bondley. The process is carried out in a vacuum at high temperature, which effectively drives out gases in the metal and ceramic parts. This simplifies final evacuation of the tube. The method may be used to join two pieces of ceramic as well as to make a ceramic-to-metal seal.

Science News Letter, October 23, 1948

PALEONTOLOGY

Fossils of Early Mammals Brought to Smithsonian

➤ FOSSILS OF ANIMALS that lived in Eocene time, the dawn period of the Age of Mammals, have been brought back to the Smithsonian Institution in Washington by Dr. Charles L. Gazin, who spent the summer digging for them in western Wyoming and Montana.

Included in the collection is an excellent skull of the little eohippus, the terrier-sized horse that had individual hooflets on each of its separate toes. To zoologists this animal is known as Hyracotherium.

Another notable find is the skeleton of an animal about the size of a sheep. Although it had clawed feet, it is believed to be distantly related to the hoofed animals of the present time. Its scientific name is Meniscotherium.

Near Pipestone Springs, Mont., Dr. Gazin worked in deposits of the second major period of mammalian time, known as the Oligocene. Here he found bones of numerous small animals, forerunners of present-day rodents, dogs and cats, moles and shrews. Most familiar fossils of this age are those of huge, rhinoceros-sized beasts; good fossils of small Oligocene mammals are much rarer.

Science News Letter, October 23, 1948

ASTRONOMY

Orion Heralds Winter

In November this star begins appearing in the evening skies. The planet Jupiter is also visible but sets a few hours after sunset.

By JAMES STOKLEY

➤ IF THERE IS any group of stars that characterizes the evenings of winter, it is Orion, the warrior. It shines high in the south in January and February. With the coming of November, it begins to make its appearance in the evening skies, thus heralding the winter that so rapidly approaches.

Its position is shown on the accompanying maps. These give the appearance of the heavens at about 10:00 p. m., your own variety of standard time, on Nov. 1; an hour earlier in the middle of the month and two hours earlier at the end. Orion is shown on the map of the southern sky, close to the east point of the horizon. The three stars that mark the warrior's belt are upright. Brilliant Betelgeuse, in his shoulder, is to the left, and Rigel, in his upraised foot, is to the right. As we see it now, the giant is on his back, looking up towards Taurus, the bull, a group in which Aldebaran, another star of the first magnitude, can be seen.

Next to Taurus, to the left, is Auriga, the charioteer, with first magnitude Capella. Below it is Gemini, the twins, of which the brightest star is Pollux, of similar brilliance. The fact that it is so low—and that its light has to pass through a considerable thickness of the earth's atmosphere—dims it so that it appears about a magnitude fainter.

"Great Square"

High in the south are the four stars that make up the "great square" which is mostly in the constellation of Pegasus, the winged horse. Alpheratz, the star in the upper left, is in Andromeda, the chained princess, as the story in Greek mythology had it.

Continuing to the west we find, low in the sky, three more stars of the first magnitude. One is Deneb, at the top of the northern cross; actually part of the constellation of Cygnus, the swan. At the bottom of the cross, now standing upright, is the fainter star, Albireo. To the right of this orb we find another of the highest brilliance, Vega, in Lyra, the lyre. About as high and farther left is the third, Altair, in Aquila, the eagle.

Low in the south there is still another star which the astronomer rates as magnitude one, though like Pollux, its lowness in the sky makes it seem dimmer. This is Fomalhaut, in the constellation of Piscis Austrinus, the southern fish.

One planet can be seen on November evenings. It is Jupiter, magnitude minus 1.5, in the constellation of Sagittarius. It sets only a few hours after sunset, before the time for which the maps are prepared. About midnight Saturn, of magnitude 0.9, rises in the constellation of Leo. It is near the bright star Regulus. Before sunrise Venus appears in the east, in the constellation of Virgo, the virgin. Around Nov. 4 Mercury, then farthest west of the sun, also appears low in the east as dawn is breaking. It stands in the group of Libra, the scales. Our remaining naked eye planet, Mars, is in the figure of Ophiuchus, the serpent carrier, which is so low in the southwest just after sunset that it can hardly be seen.

Third Eclipse

November brings the year's third eclipse. On the first of the month the tip of the moon's dark shadow will cross the surface of the earth, and along its path the sun will be completely hidden. This will not, however, be visible from the United States, nor from any part of the western hemisphere.

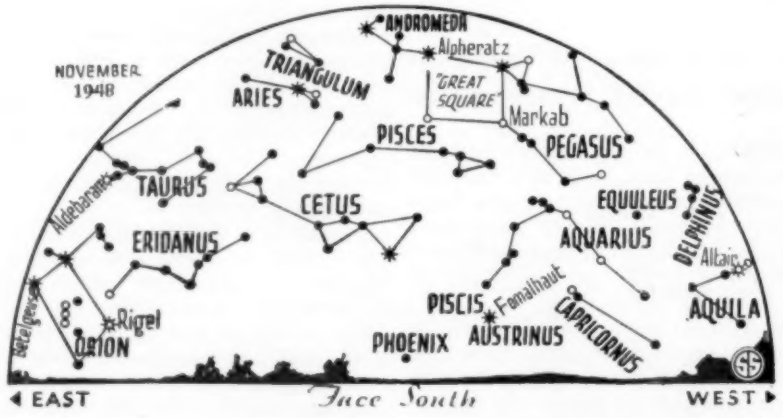
Actually, this eclipse already will be taking place as the month of November begins in the United States and Canada, but by Greenwich time, which astronomers use, it is entirely on Nov. 1. At 11:19 p. m., E. S. T., on Oct. 31, the Nov. 1 sunrise will just be taking place in the Belgian Congo, in Central Africa. In that country, at a point a couple of hundred miles west of Stanleyville, the tip of the moon's shadow will first touch earth. From there it sweeps across Uganda and Kenya to the Indian Ocean, and after that effectively misses land. At 2:38 a. m., E. S. T., as the sun is setting in the Pacific a few hundred miles to the west of the south island of New Zealand, the shadow leaves the earth.

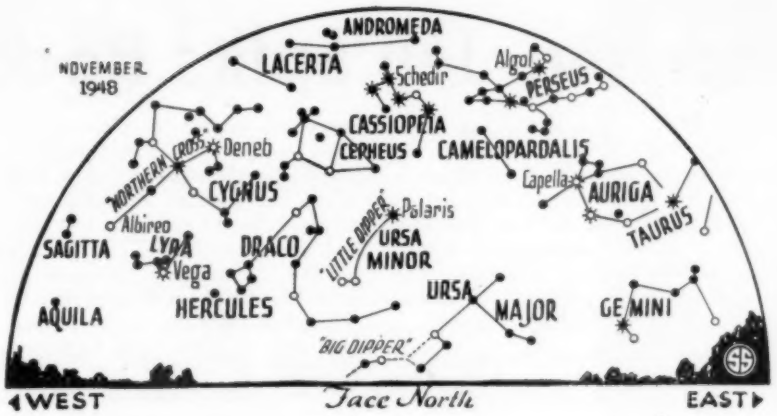
Along this "path of totality," whether on a ship or on land, an observer will see a total eclipse of the sun. The bright disk of that important star will be completely hidden from view, and the pearly white corona becomes visible around the dark disk of the moon. At the Indian Ocean coast of Africa, the total eclipse will last only for about 50 seconds. From the point in the Indian Ocean where the eclipse will occur at local noon, latitude 33° 25′ south and longitude 76° 37′ east of Greenwich, totality will be greatest—1 minute 56 seconds. Over a much larger area, including central and south Africa, Arabia, practically all of the Indian Ocean and most of Australia and New Zealand, there will be a partial eclipse, with the moon only partly hiding the sun.

No doubt astronomers from observatories in South Africa, and there are a number in that country, will make some effort to observe the total eclipse. The short duration of totality and the low altitude of the sun at land stations, where large instruments may be erected, make this eclipse considerably less attractive than others in recent years. There will not be the large attendance of astronomers from Europe and the United States, like those who went to South America and Africa last year to observe the eclipse of May 20.

Path of Totality

After 1948, the next good chance to observe a total eclipse of the sun occurs on Feb. 25, 1952. Then the path of totality traverses Africa, Arabia, Iran and Siberia, with a maximum duration of about three minutes. After that the next is on June 30, 1954. The path on that date starts in the eastern United States at sunrise, and crosses the Atlantic Ocean and Europe. At the





longest this will obscure the sun for 2 minutes 30 seconds. But the following year brings the best total eclipse in centuries. On June 20, 1955, the moon's shadow will cross Ceylon, Siam and the Philippines, and the maximum duration of totality will be the unprecedented figure of 7 minutes 10 seconds, only about 20 seconds less than the greatest possible length of an eclipse. That one will certainly be well observed.

Time Table for November

Nov.	EST	
1	1:02 a. m.	New moon, total eclipse of sun, visible from vicinity of Indian Ocean
3	11:54 a. m.	Moon passes Mars
4	2:00 p. m.	Mercury farthest west of sun, visible before sunrise
	2:54 p. m.	Moon passes Jupiter
8	11:46 a. m.	Moon in first quarter
10	10:00 a. m.	Moon farthest, distance 251,400 miles
15	early a. m.	Meteors of Leonid shower, though brightness of moon will interfere with visibility
16	1:30 p. m.	Full moon
23	4:22 p. m.	Moon in last quarter
	9:26 p. m.	Moon passes Saturn
25	8:00 p. m.	Moon nearest, distance 229,500 miles
28	1:01 a. m.	Moon passes Venus
30	1:44 p. m.	New moon

Subtract one hour for CT, two hours for MT, and three for PT.

Science News Letter, October 23, 1948

MINERALOGY

Sources of Oil Shale

➤ OIL SHALE, important raw material to furnish fuel oils as petroleum deposits approach exhaustion, is not always a true shale, and it does not contain oil, the American Society of Mechanical Engineers was told in Amarillo, Tex., by Tell Ertl, Union Oil Company of California, Rifle, Colo.

Oil shale is a sedimentary rock containing organic matter insoluble in ordinary solvents but capable of yielding an oil on heating. Some is a true shale since its inorganic matter is argillaceous, that is, composed of clay, but in many the inorganic matter is calcareous or dolomitic. These should be called marlstones, limestones, dolomites or magnesian marlstones. The Green river oil shale of Colorado, Utah and Wyoming is a magnesian marlstone.

The organic matter in oil shale is a solid known as kerogen, that probably consists of a mixture of compounds of carbon, hydrogen, oxygen, nitrogen and sulfur, he stated. On heating oil shale to a temperature above 750 degrees Fahrenheit, the kerogen is cracked into coke, gases condensable to an oil, and non-condensable gases.

Oil shale is found in most of the countries of the world and most of the states of the United States, he said. It was formed in lakes or seas in which the deposit of inorganic matter was slow and in which abundant organic matter lived or was accumulated. The organic matter of the better known oil shale deposits consists largely of macerated and putrefied microscopic vegetal organisms such as spore cases and algae. Larger vegetal matter, such as leaves and stems, and also animal matter, form part of the organic constituents of oil shales.

The most extensive oil shale deposit in the United States is the black shale of the Chattanooga formation, which is richest in Indiana, Ohio and Kentucky, though found also in 14 surrounding states. It will probably not yield over 15 gallons per ton for any large tonnage.

The richest oil shale deposit in America is found in the Green river formation of Colorado, Utah and Wyoming. It is in this region that the U. S. Bureau of Mines is recovering oil in its plant at Rifle, Colo. The oil shale is resistant to erosion and forms the tops of plateaus, one in each of these three states. The Piceance Creek Basin of northwestern Colorado contains the greatest thickness and highest grade of oil shale deposits known in the United States.

Science News Letter, October 23, 1948

Aluminum alloys are now being used in electrical house-wiring; their use reduces the weight of wire employed by about 50%.

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Do You Know?

Albacore is the choicest species of tuna fish; its meat is white.

Although known to be a native of the American continent, the exact origin of the common *white potato* is unknown.

Alaska's most troublesome predatory animals are bands of wolves and coyotes; they kill reindeer, mountain sheep, moose, caribou and fur animals.

In a recent five-year period, receipts by the U. S. government from *tobacco* and related products averaged over $950,000,000 each year.

Titanium is the seventh most common metal and the ninth most common element in the earth's crust; few have seen the pure metal because it is hard to separate from its ores.

A special *menu* is served on airplanes because of certain changes that take place in the body at high altitudes; meals are light and spaced far apart because digestion is slowed down and food remains longer in the stomach than at sea level.

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ENGINEERING

Gasoline Jell Splits Rock

➤ A NEW PROCESS to crack rock thousands of feet under ground to permit the flow of oil to the well-holes from which it is pumped to the surface was revealed in Dallas by Stanolind Oil and Gas Company at a meeting of the American Institute of Mining and Metallurgical Engineers. The process utilizes jellied gasoline, one of the war's most horrible incendiary weapons.

The jellied gasoline looks like thick mush. It is pumped into the well under very high pressure. It spreads through the underground rock formation and causes it to split and open up cracks through which the oil can flow. Sand suspended in the mush keeps the cracks from closing again. After the rocks are split, a liquid chemical may be pumped into the well. It breaks the mush into a liquid again and the gasoline flows out of the well with the oil.

The new method is expected to help petroleum engineers solve one of their major problems. This is opening up rock formation so that oil can flow to the well-holes. The method should prove of particular value in the recovery of oil from formations too "tight" for an economical oil flow. By means of it many abandoned wells may be put into operation again.

The new process, to be known as the Hydrafrac method, was explained to the engineers by J. B. Clark of Stanolind's Tulsa research laboratories. It was developed particularly for use in sandstone formations, but it will also work in limestone. It may replace a successful process now used in limestone in which an acid is used to eat holes in the rock. This acid process has not been found satisfactory for use in sandstone formations, and it is in sandstone formations that more than half the oil wells of America are producing.

Science News Letter, October 23, 1948

MEDICINE

Early Baby May Go Blind

➤ SMALL premature babies, especially those weighing less than three pounds at birth, are being saved by medical science only to face the danger of permanent blindness, it appears from a study by a husband and wife team of eye specialists, Drs. William C. and Ella U. Owens of the Johns Hopkins Hospital and Medical School.

About one in every eight of the infants weighing less than three pounds at birth goes blind, the doctors reported at the meeting in Chicago of the Academy of Ophthalmology and Otolaryngology. They studied 214 premature infants born through a two-year period.

The blindness that threatens these babies is due to a condition called retrolental fibroplasia. It was first recognized only six years ago by the late Dr. T. L. Terry of Boston.

The condition does not exist at birth and therefore is not congenital. About the second or third month, never later than the sixth month, a peculiar membrane develops behind the lens of the baby's eye. Usually both eyes are affected. The membrane in most cases goes on to develop into a fibrous structure which fills the eyeball. The eyeball enlarges to a state resembling glaucoma. The blindness is permanent and usually complete and there is no treatment for it.

As to the cause, Dr. Owens observed that in recent years there has been increased interest in the preservation of the lives of premature infants.

"In an effort to compensate for their physiologic immaturity," he continued, "these infants are often given diets high in protein, large amounts of vitamins, repeated transfusions of blood and plasma, parenteral amino acids and occasionally hormone therapy. In some premature nurseries penicillin is given prophylactically on admission.

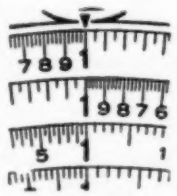
"Whether any of these methods of therapy produce a metabolic imbalance which is related to the disease is as yet unknown."

Dr. Owens said that studies of the nursery records of the children who developed the condition are being made now to determine whether there is any common factor that might be identified as a possible cause.

Science News Letter, October 23, 1948

Funeral vases closely modeled after potato tubers have been found in prehistoric Peruvian graves.

THE BINARY SLIDE RULE



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I AGRICULTURAL PRODUCTS COLLECTION

An oil shampoo, the chief ingredients of which were extracted from coffee beans; complete boll of fluffy white cotton; ramie stem complete with ribbons of fiber just beneath the thin bark—these are some of the exciting objects contained in the COFFEE BYPRODUCTS, COTTON and RAMIE UNITS making up this collection. In the picture you see the 16 specimens that will be yours if you select this group. The oil shampoo, powdered soap, all-purpose cleanser and hair rinse were all made from roasted coffee beans (center). Cotton tinted brown and green by nature, as well as white cotton fibers, a complete cotton boll, cottonseed meal and cottonseed hulls (right) are also included. Ramie stem, ribbons of the fiber, degummed fiber, fiber ready for spinning and completed fabric (left) demonstrate the story of this unique fiber.

II TASTE COLLECTION

Sugar 500 times as sweet as sucrose; pieces of tan-colored bark used to season food; an edible wetting agent often used in chocolate, nut brittle and toffee—these and many other intriguing specimens are contained in the SWEETNESS, SPICE and SOYBEAN LECITHIN UNITS which make this tasty collection. There are 18 specimens in all, including saccharin, dextrose, lactose, allspice, cinnamon, cloves, ginger, sage, mustard, soybeans, pure lecithin and lecithinated flour.

III HOME COLLECTION

Paints that glow in the dark; plastic spoon for measuring coffee; reinforced plastic film for shelf and table covering—these are the interesting objects in the PHOSPHORESCENCE, HOME AND OFFICE, and HOUSING MATERIALS UNITS contained in this collection. The 16 specimens to be found in these three boxes include phosphorescent tape and paint, coffee measure, plastic-and-wire screening, shaver head, wood fiber insulation board, plywood, glass fiber fabric and glass insulation.

IV PLANT COLLECTION

Latex from the sapodilla tree, basic material for chewing gum; crystals that kill insects; brilliant dyes obtained from plant roots—these are the interesting specimens in the CHICLE, INSECTICIDE and VEGETABLE DYE UNITS that will be sent if you order this collection. Included in the 18 specimens making up these three kits are raw chicle, unfinished gum centers, candy-coated gum, DDT crystals, powdered DDT, wettable DDT, pyrethrum flowers and rotenone dust.

V CHEMICAL COLLECTION

Powder from which you can make a length of synthetic fiber; a yellow non-metallic element used for matches, fertilizer and insecticides; zinc made fine-grained by incorporation of only 0.05% lithium—these are contained in the VINYL RESIN FIBER, SULFUR and LITHIUM UNITS comprising this collection. The 20 specimens include vinyl resin, filter cloth, felt, tea bags, sulfur-bearing limestone, pyrites, zinc sulfide, flowers of sulfur, natural spodumene, lithium chloride, lithium nitride, pure zinc and lithium treated zinc.

VI TEXTILE COLLECTION

Material made from cat-tails; twisted cord used in auto tires; soft fibers made from glass—these are the surprising subjects in the UNUSUAL FABRICS, RAYON and GLASS FIBER UNITS. Sixteen specimens are contained in the three packages, and include fabric pressed from spruce-pulp cellulose, "fur" made from the Typha plant, fabric made from milk protein, cotton pulp, chemical cotton in sheet form, rayon fabric lining material, large glass fibers that break easily, and fine ones about .00022 inch in diameter.

VII MINERAL COLLECTION

Stone that attracts bits of iron; remains of trees that lived millions of years ago; bits of semi-precious stone used in sand blasting and abrasives—these are the intriguing specimens in the LODESTONE, PETRIFIED WOOD and SAND UNITS to be sent those selecting this collection. Among the 17 specimens in this set are lodestone, iron filings, compass card, petrified oak, elm, redwood, sweetgum and bog, round sand, greensand, heavy sand, calcareous sand and garnet sand.

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10-23

MEDICINE

Cancer Aid from Amazon?

Super-secret head-shrinking solution may be able to shrink cells that have begun to grow wildly back to normal, scientist suggests.

➤ HEADHUNTERS may be bad medicine for their victims but the chemical solution they use for shrinking heads may be good medicine for cancer patients, it was suggested by Dr. Wilburn H. Ferguson, an American-born physician here on a one-man medical mission for Ecuador.

Cancer is a pathological condition in which the cellular tissue throws off all restraints of growth and multiplies haphazardly. Nothing so far has been found to shrink the cells back to normal once they begin their wild growth. Dr. Ferguson believes that experiments with the super-secret chemical solution used by some Jivaro tribes for head-shrinking may open up a new approach to cancer.

He may be the first white man ever to have obtained this material, which is a closely guarded secret among the Jivaro chiefs. At a conference held at the Ecuadorean Embassy, he stated that it took him 17 years before he finally found a Brujo, or chief, who would part with a small jarful of it. He is willing to turn it over to competent medical authorities for experimentation, having been promised by the Brujo that a large enough supply would be furnished.

American authorities on ethnology in Washington, who have made expeditions to headhunting areas, stated that they were not aware that any super-secret solution was used. The headhunters they came in contact with boiled the heads in water and used the juice from the chinchipe vine for its astringent effect.

However, there are over a hundred tribes in the Amazon basin, each using a different type of solution. Dr. Ferguson was impressed with this process because it not only shrinks normal skin tissue to miniature size but also the cartilaginous tissue in the nose and ear. European pathologists believe that this cannot be done, Dr. Ferguson said.

In all, Dr. Ferguson has brought back some 24 crude drugs used by the Jivaros to treat many conditions. He hopes to interest doctors and researchers in this country in them. He has donated specimens of them to the Museum of the Royal College of Surgeons in Edinburgh, Scotland.

The medical art of the Jivaros has already contributed much to modern medicine. Five widely known drugs, originally used by these people, are quinine, cocaine, caffeine, cascara sagrada (laxative) and curare, in addition to rotenone which is used as an insecticide.

Some of the drugs brought back by Dr. Ferguson that have never been analyzed or experimented with and their use by the natives, are: cana agria, used for jaundice; mano de sapo (frog hand), for intestinal colic and dysentery; raibarbudo, for heart failure and palpitation; copal, a disinfectant for open cuts, tropical ulcers and other sores; guga mama panga, for infections, fevers and other conditions following childbirth.

Dr. Ferguson is here on a mission to interest university medical schools in the establishment of an international teaching hospital for post-graduate students at Quito, Ecuador. He is director of anesthesia at the San Juan de Dios hospital there, which is one of the oldest hospitals on the American continent. It has been in continuous operation since 1565.

Science News Letter, October 23, 1948

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GENERAL SCIENCE

Scientists Organize Group On Loyalty Clearance

➤ A "SCIENTISTS' Committee on Loyalty Problems" has been organized in Princeton, N. J., by the Federation of American Scientists.

The new group, which includes Albert Einstein and other well-known scientists, will not "defend" scientists under investigation, it was explained, but it will seek "full and fair hearings." Information and legal advice will be furnished by the committee to scientists with clearance problems.

A statement issued in connection with the announcement of the new committee charges that clearance procedures have "caused some grave and wholly unnecessary injustices to many scientists." This has made it difficult for government laboratories to hire scientists, the statement adds.

Attacked in the statement are:

1. "The doctrine of guilt by association," which, the statement contends, "seems to have been carried to absurd extremes."
2. Restrictions "of any sort" on scientists not doing classified work.
3. "Black-listing" of scientists who have been once refused loyalty clearance.

Listed as another type of loyalty problem is "the public defamation of one of America's leading physicists, Dr. Edward U. Condon, director of the National Bureau of Standards.

"Scientists should take the lead in combating this vicious type of character assassination and in ensuring full public understanding of the facts," the statement concludes.

Chairman of the new committee is Dr. William A. Higinbotham, Brookhaven National Laboratory scientist and former secretary of the Federation. A. S. Wightman of Princeton University will serve as secretary of the group, with D. R. Hamilton, also of Princeton, as treasurer.

In addition to Einstein, members include Dr. H. D. Smyth, Princeton physicist and author of the famous "Smyth Report" on atomic energy; Dr. S. A. Goudsmit, Brookhaven scientist who headed a postwar mission to investigate the scientific effort of the Nazis; Dr. Irving Wolff, director of radio tube research at the Radio Corporation of America laboratories; Dr. M. S. Livingston, of the Massachusetts Institute of Technology; Dr. Stuart Mudd of the University of Pennsylvania School of Medicine; Dr. Oswald Veblen of the Institute for Advanced Study; L. P. Eisenhart, dean emeritus of the graduate school of Princeton University; Dr. Lyman Spitzer, Jr., director of the Princeton Observatory; and D. Bohm, Roy Britten and R. R. Bush, all Princeton University scientists.

Science News Letter, October 23, 1948

Freezer *locker plants* have multiplied eight times in the past ten years.

A new type of *earthworm*, thought to be from the orient, is stirring up trouble for New England golfers on putting greens; it brings to the surface a much larger amount of casts than ordinary earthworms do.

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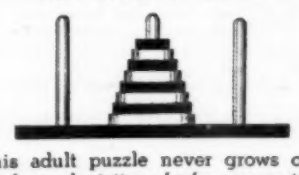

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Books of the Week

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THE AFFAIRS OF DAME RUMOR—David J. Jacobson—*Rinehart*, 492 p., $5.00. An interesting account of fish tales that thousands of credulous persons have swallowed enthusiastically.

THE COAST OF NORTHEAST GREENLAND: With Hydrographic Studies in the Greenland Sea; The Louise A. Boyd Arctic Expeditions of 1937 and 1938—Louise A. Boyd and others—*American Geographical Society*, 339 p., with supplement of maps, illus., $6.00. The author, Miss Boyd, has financed, organized and conducted seven expeditions into the Arctic in ships she chartered and equipped. These reports of her scientific staff, gorgeously illustrated with her own photographs, were previously withheld from publication because of the military value of the material.

DRUG RESEARCH AND DEVELOPMENT — Austin Smith and Arthur D. Herrick, Eds.—*Revere Publishing Company*, 596 p., $10.00. A large number of authors contribute to this volume telling the story behind the preparation of what the patient takes, including the research, testing, control, and even storage involved.

ELEMENTARY STATISTICAL ANALYSIS—S. S. Wilks—*Princeton University Press*, 284 p., paper, $2.50. Prepared especially for a short course that is introductory to all fields of investigation.

THE EMOTIONS: Outline of a Theory—Jean-Paul Sartre—*Philosophical Library*, 97 p., $2.75. Translated from the French by Bernard Frechtman. A philosophical work.

THE INTERNAL COMBUSTION ENGINE—C. Fayette Taylor and Edward S. Taylor—*International Textbook Co.*, rev. ed., 339 p., illus., $4.25. A textbook revised to include gas turbines and jet engines.

MANAGEMENT OF COMMON GASTRO-INTESTINAL DISEASES—Thomas J. Johnson, Ed.—*Lippincott*, 280 p., illus., $7.00. A symposium by 19 contributors presenting various divergent opinions.

THE MERCHANT SHIP: Design Past and Present—G. S. Baker—*Sigma*, 159 p., illus., $3.65 approx. For those who love ships.

PAPERS PRESENTED AT THE NAVAL ORDNANCE LABORATORY MAGNETIC MATERIALS SYMPOSIUM—*U. S. Naval Ordnance Laboratory*, 61 p., illus., paper, free upon request direct to the Office of Technical Services, Washington 25, D. C. Papers presented in June, 1948, before a group which had succeeded in adapting German techniques and material for American use and had developed one new-type magnetic material.

PEDIATRICS AND THE EMOTIONAL NEEDS OF THE CHILD: As Discussed by Pediatricians and Psychiatrists at Hershey, Pennsylvania, March 6-8, 1947—Helen L. Witmer, Ed.—*Commonwealth Fund*, 180 p., illus., paper, $1.50. Discussion resulting from the bringing together of baby doctors and specialists in mental health. Of interest not only to physicians but also to parents and teachers.

THE PLAGUE AND I—Betty MacDonald—*Lippincott*, 254 p., $2.75. The amusing author of "The Egg and I" finds something to laugh at in a personal battle against tuberculosis including life in a sanatorium.

PRACTICAL DISC RECORDING—Richard H. Dorf—*Radcraft*, 96 p., illus., paper, 75 cents. Presenting a new hobby for radio enthusiasts.

RADIO AT ULTRA-HIGH FREQUENCIES, VOLUME II (1940-1947)—Alfred N. Goldsmith and others, Eds.—*RCA Review*, 485 p., illus., $2.50. A technical book for scientists and engineers.

STUDIES OF PROPERTIES OF SULFUR JOINTING COMPOUNDS—W. W. Duecker and others—BACTERIAL OXIDATION OF SULFUR IN PIPE SEALING MIXTURES—Lloyd R. Frederick and Robert L. Starkey—*American Water Works Assn.*, 21 p., illus., paper, free upon request to Mellon Institute, University of Pittsburgh, Pittsburgh 13, Pa.

SUBMARINE GEOLOGY — Francis P. Shepard—*Harper*, 348 p., illus., $6.00. A textbook—the first in this field—but written in non-technical style so as to be interesting to all who have wondered about reefs and coastlines, waves and the bottom of the sea.

SYMPOSIA ON NUTRITION OF THE ROBERT GOULD RESEARCH FOUNDATION, VOLUME I, NUTRITIONAL ANEMIA—Arthur Lejwa, Ed.—*Robert Gould Research Foundation*, 194 p., illus., free upon request direct to publisher, Carew Tower, Cincinnati 2, Ohio. Papers by eleven investigators covering chemical, physiological and clinical aspects.

TRANSFORMERS: Theory and Construction—W. C. Sealey—*International Textbook Company*, 256 p., illus., $3.00. A practical book.

VOYAGES TO THE MOON—Marjorie Hope Nicolson—*Macmillan*, 297 p., illus., $4.00. Taking the reader out of this world on flights of fancy and legend collected from literature.

Science News Letter, October 23, 1948

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MANUAL 25¢

MEDICINE

Arrow Poison Used In Throat Surgery

➤ CURARE, the poison South American Indians used generations ago on their arrows, is now being used by modern surgeons when operating on the throat. Its value in supplementing and reducing high dosages of common anesthetics was reported by Dr. R. Charles Adams of Rochester, Minn., at the meeting in Chicago of the American Academy of Ophthalmology and Otolaryngology.

Curare paralyzes reflexes, he explained. In operations on the throat, even simple ones, the gagging reflex must be abolished and ordinarily this requires very deep anesthesia. The sneeze reflex which goes into action when the surgeon touches the iris of the eye also requires deep anesthesia to abolish it.

Ether and other gases abolish these reflexes, but are often barred because of the danger that a spark from the electrocautery used in such operations might cause an explosion. Gas anesthetics present a special problem because the operations inside the throat are done in the same area where the apparatus for the anesthesia must be maintained.

Pentothal, an anesthetic which can be given by vein, eliminates these problems, but must be given in very large doses to suppress the throat reflexes. But when curare is used with it, Dr. Adams said, smaller doses of pentothal can be given. He called the combination of these two drugs a "tremendous advance."

Science News Letter, October 23, 1948

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HOSIERY PROTECTOR is made of waterproof, transparent plastic and fits over the top of the shoe like a legging. It has forward and rear edges, and opens along one or the other. It has a slide fastener for closing the opening, and a strap under the instep to hold the protector tight to the shoe.

Science News Letter, October 23, 1948

REPAIR DISK, for use when record changers enlarge and damage the pivot holes of disk voice and other recordings, is a small circular plastic piece with a center hole quickly cemented to the damaged recording.

Science News Letter, October 23, 1948

SKETCHING BOARD, for use in a pad on a desk, is a Vinylite plastic sheet on which either pen or pencil may be used. Marks remain until erased by wiping the sheet with a cloth which has been dipped in a special remover fluid that comes with the board.

Science News Letter, October 23, 1948

HEATING CABLE installed on roof edges, as shown in the picture, keeps melting snow from backing up under shingles and eaves. It is an electric cable, plugged into the ordinary household outlet only when needed and consuming only one cent's worth of electricity an hour.

Science News Letter, October 23, 1948

MILK BOTTLE HOLDER, a newly patented device to make pouring from the bottle easy, is a pitcher-shaped affair with a handle. The pitcher is in two parts, hinged together, easily opened so that the bottle may be placed inside with the top of its neck protruding.

Science News Letter, October 23, 1948

LIQUID-COOLED beer keg, a metal type recently patented, is a keg within a keg, with provisions for circulating a cold liquid between the two. Also to help cool the beer, cross tubes extend through the inner keg through which the cold liquid can pass.

Science News Letter, October 23, 1948

PARACHUTE PACK, for Navy planes in dropping ordnance and other materials to the ground, is made of glass fiber and plastic resins, and has high strength and light weight. The pack is made in two pieces, a dish-like section and a cover section. When the unit is dropped, a spring opens the lid and releases the parachute.

Science News Letter, October 23, 1948

HEATING DEVICE for canned foods, recently patented, is a container with a chemical layer at the bottom and means of adding water to activate the chemical to generate heat. The can to be heated is placed within; a tight-fitting cover on the container keeps the chemical dry until wanted for use.

Science News Letter, October 23, 1948

• Nature Ramblings *by Frank Thone* •

Wanted: Quiet

➤ WILDERNESS areas in the national forests are not going to be hospitable to airplanes, automobiles and motor boats if recommendations of conservationists in the National Resources Council of America are carried out.

They regard penetration by motorized travel as potentially destructive of the very things which the sportsmen and vacationers are in such a roaring hurry to enjoy.

The problem of motorized penetration of the wilderness has been growing increasingly acute in the past two or three years, with amphibian planes and flying boats hopping in a few hours over hundreds of miles of forest, to alight on lakes hitherto reached only after many days of hard travel on foot trails or by canoe. The sudden increase in numbers of fishermen and hunters getting into the Big Woods by motorized travel seriously threatens to destroy fish and game populations, the scientists fear.

Their consensus is that it is all right for planes and motor vehicles to come to the edge of the wilderness, but that when you actually enter the areas you should go on your own feet or paddle your own canoe. This is essentially the policy already adopted in Canada, they point out, and this practice should be even more carefully adhered to in this country where remaining wilderness areas are far smaller and fewer than they are in our neighbor to the north.

The policy advocated by the delegates, who represent the leading conservation and wildlife organizations of the U. S., is intended to apply particularly to the officially designated wilderness areas of the national forests. These are isolated, remote tracts, with few or no roads, meant to be kept in as nearly primeval condition as is still possible. In addition to their recreational uses by hardy hikers and canoeists they have high value to scientists, who can learn in them the ecological lessons needed for the restoration of America's all-but-vanished forests.

Science News Letter, October 23, 1948